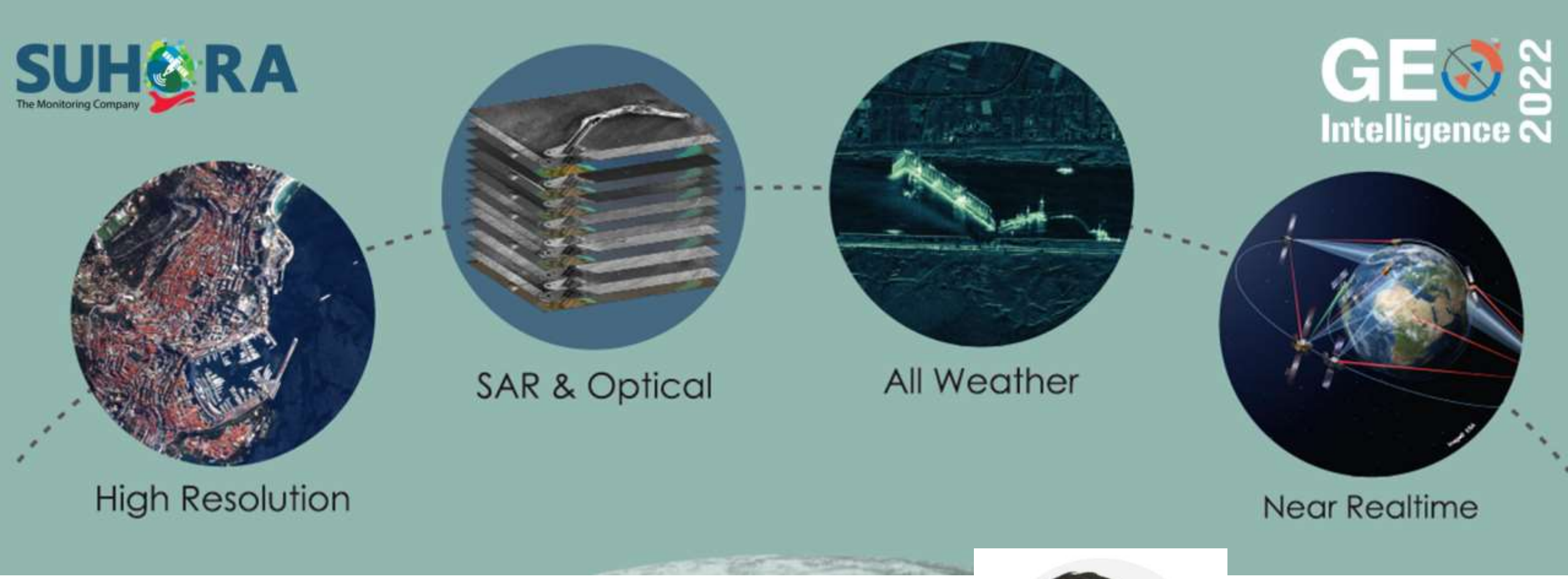


Near Real-Time Disaster Monitoring using New Space Technology

KRISHANU ACHARYA
Co-founder, Suhora

Suhora Vision and Mission

Vision

Use Technology to create a Sustainable Planet.

Mission

To become leader in 3M (Monitoring, Mapping & Managing) of Assets using Space Technology, AI, Big Data and Strategic Technologies.

Strategic Partners

ICEYE

Persistent Radar Satellite Surveillance

SATELLOGIC

Most Affordable Optical Constellation

Near Real-time Capabilities

All Weather- SAR

- 21 Satellites
- Over 600,000 sq km of the Indian territory can be accessed per day

Specifications

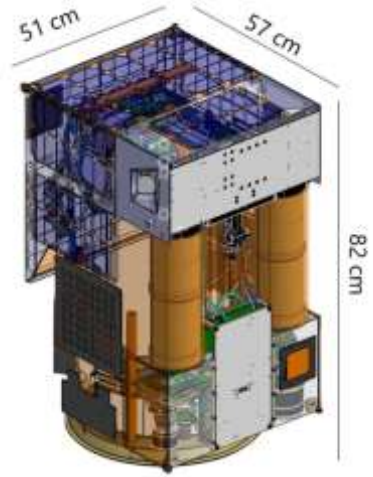
- Spotlight / Spotlight Extended(25cm)
- StripMap(3m)
- ScanSAR(15m)

Optical(Multi-Spectral)

- 26 Satellites
- Over 300,000 sq km of the Indian territory can be accessed per day

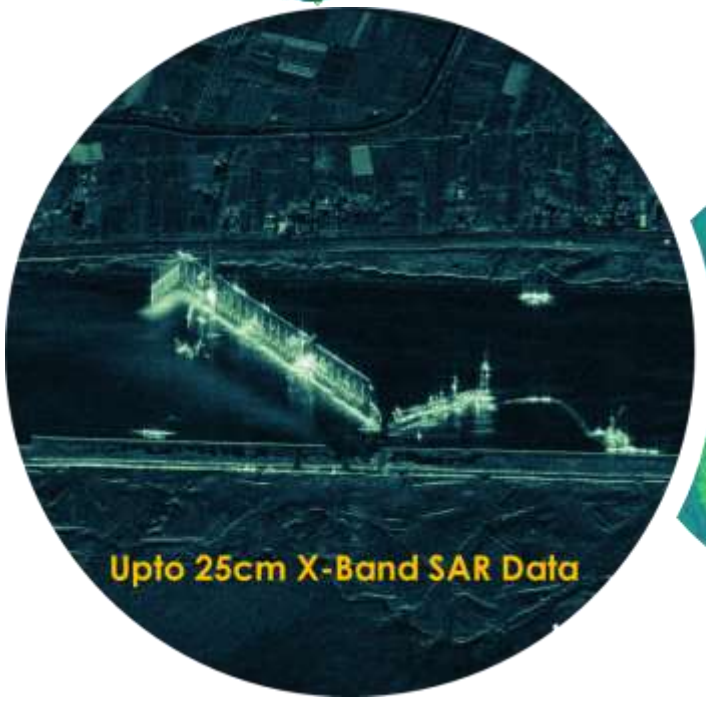
Specifications

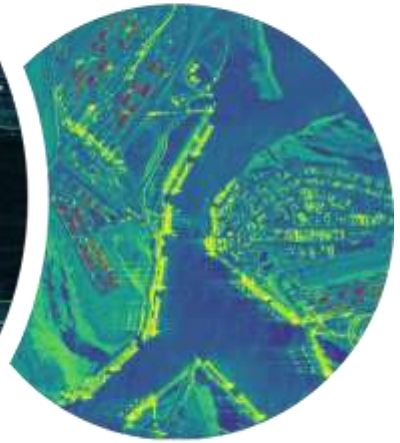
- 70cm Super resolution
- Spotlight (5x5km), long strip (2000x5km), oblique, tile collection methods
- 25m Hyperspectral

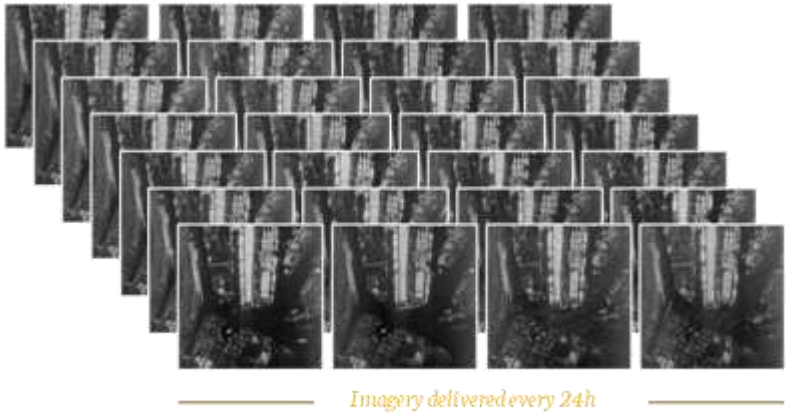


ICEYE Technology Capabilities

ICEYE







2022

2 HOURS

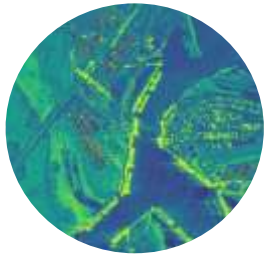
AVERAGE TIME FROM ACQUISITION TO DELIVERY

5 HOURS

NON-COHERENT REVISIT TIME

8 HOURS

COHERENT REVISIT TIME



Persistent Monitoring

ICEYE's large constellation of new space satellites unlocks new access to valuable data on any location on Earth – **day and night**, through the clouds, and multiple times per day

High Resolution and Swath

Very High resolution up to **25 cm** and continuous monitoring of up to **10,000** square kilometers in a single image

Mission Ready

Task ICEYE SAR satellites to access critical data on any location on Earth – day or night and in any weather. The process is simple, and images are usually delivered within **1* hour** of initial request.

* In ideal Condition

Satellogic Technology Capabilities

SUHORA
The Monitoring Company

SATELLOGIC

Roadmap

	2021	2022	2023	2024	2025+
SATELLITES IN ORBIT	17	34	63	139	202
SATELLITE CHARACTERISTICS (GSD RESOLUTION)	0.99m at 470 km	0.70m at 470 km		0.40m at 440 km	0.30m at 330 km
DAILY REVISITS OF POINTS OF INTEREST	4	7	13	28	40
PRODUCT LAUNCHES	DSC	Data Platform	Weekly World Remaps		Daily World Remaps

Perfect Combination

Up to 4 daily revisits of any point. Patented technology delivers multispectral imagery at **sub-meter resolution**. Industry's **most competitive price** point

Future Proof

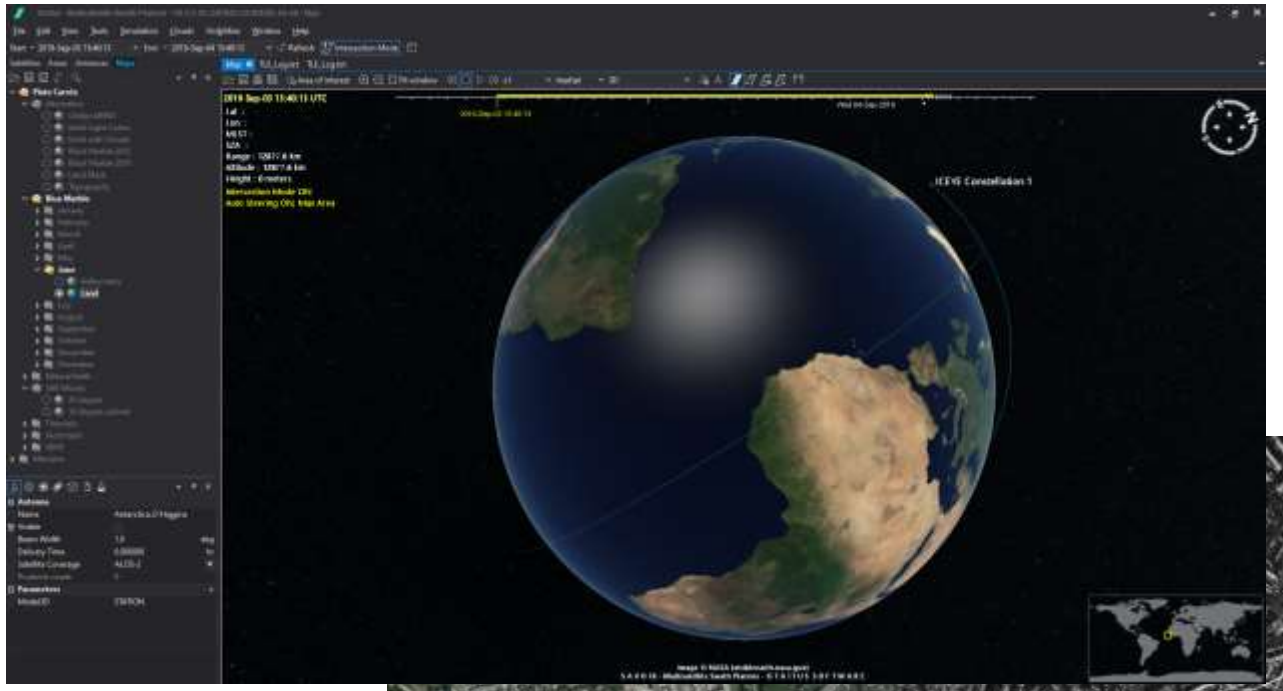
Satellogic offer different metered subscription models to deliver data bundles for different industry verticals based on region, end-use, and volume. Satellogic also commits to bring **upto 300+ Satellited by 2025**

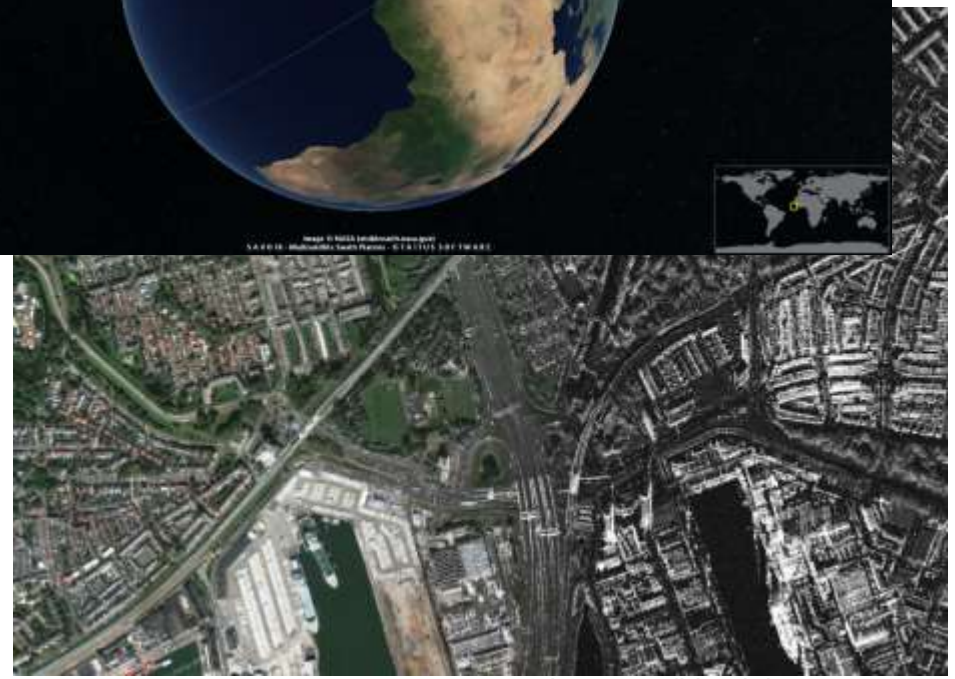
Mission Ready

Gain **direct access** to Satellogic's high-frequency, high-resolution satellite imagery, search our image library, order new captures, and stream or download imagery Near Real Time all via web app or API.

SPADE: Collaborative Geospatial Platform

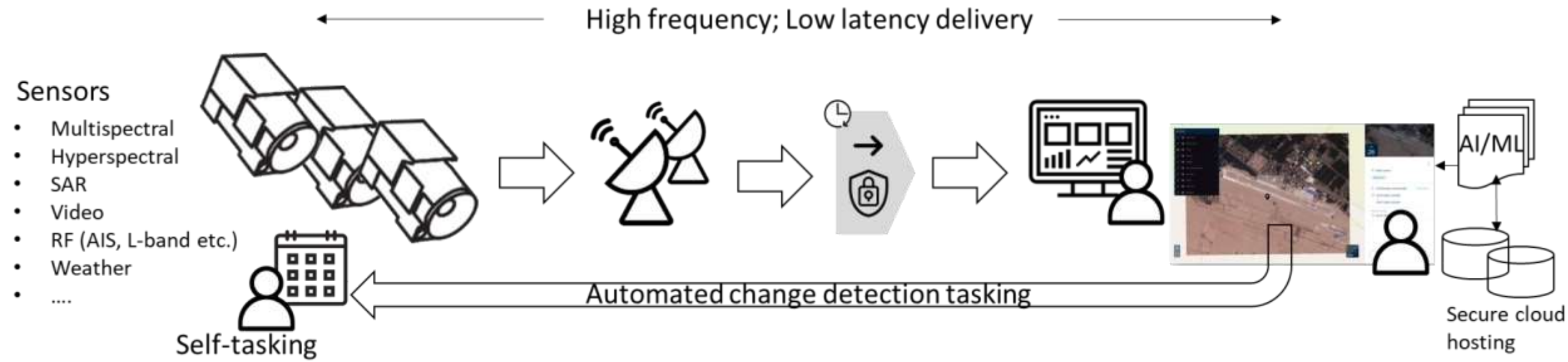
Intuitive **Tip-n-Cue Platform** works seamlessly to Task, Download & Process multiple satellite Data





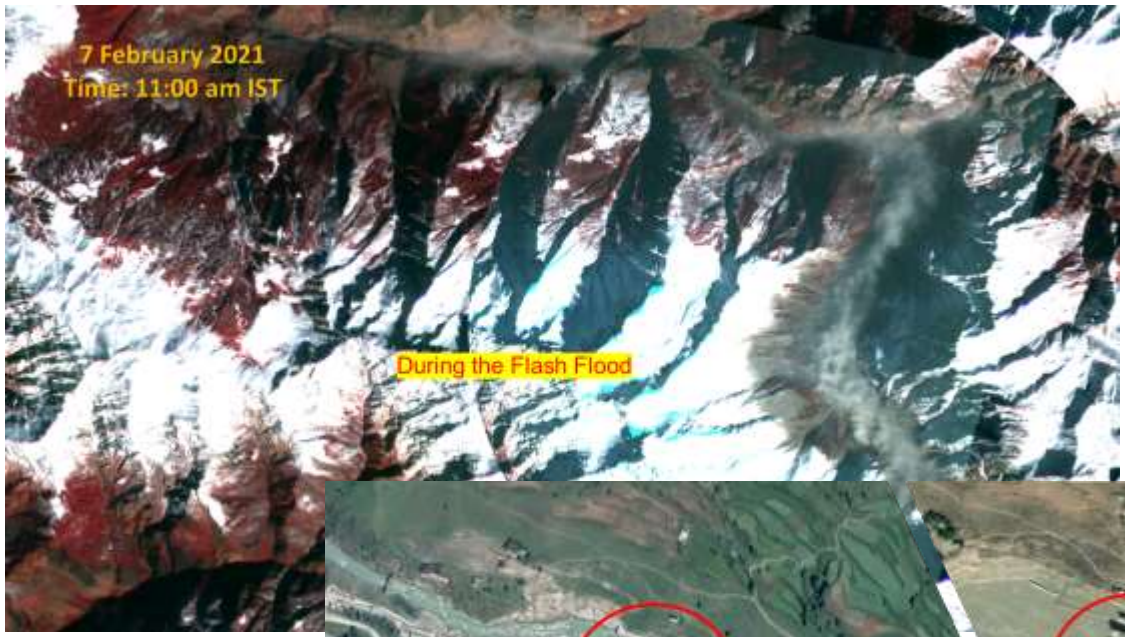
1. Monitor everything – from border monitoring, infrastructure development, and maritime security to emergency response
2. Daily or whatever frequency required, including led by automated change detection
3. Task different satellites, including those that can see through clouds and with night vision
4. Warnings and signals
5. Analysis of the trends
6. Visualization and reports generation

Smart Tip-n-Cue: Workflow

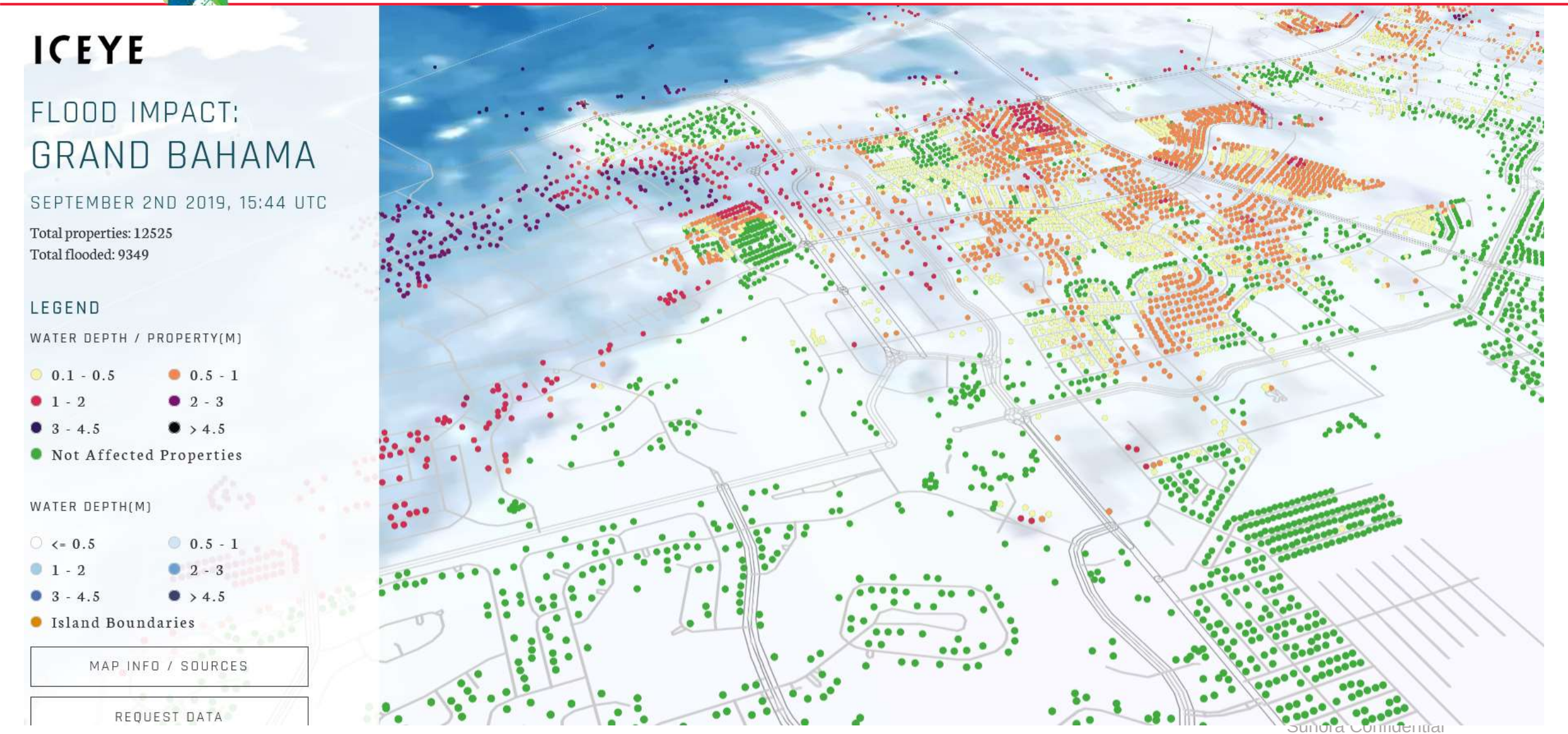


Real Time Monitoring during Disaster

- High Frequency Monitoring Using SAR and Optical During Disaster
- During Disaster Imagery Collection Request and Downloading facility
- Tip and Cue using High Frequency SAR and Optical Satellites
- SAAS based Image Exploitation and Change detection tool for decision Making
- Tip and Cue Using Optical and SAR data for any Weather, Day ad Night monitoring ~10 shots per day in standard conditions
- Flood Depth



Flood Depth Monitoring



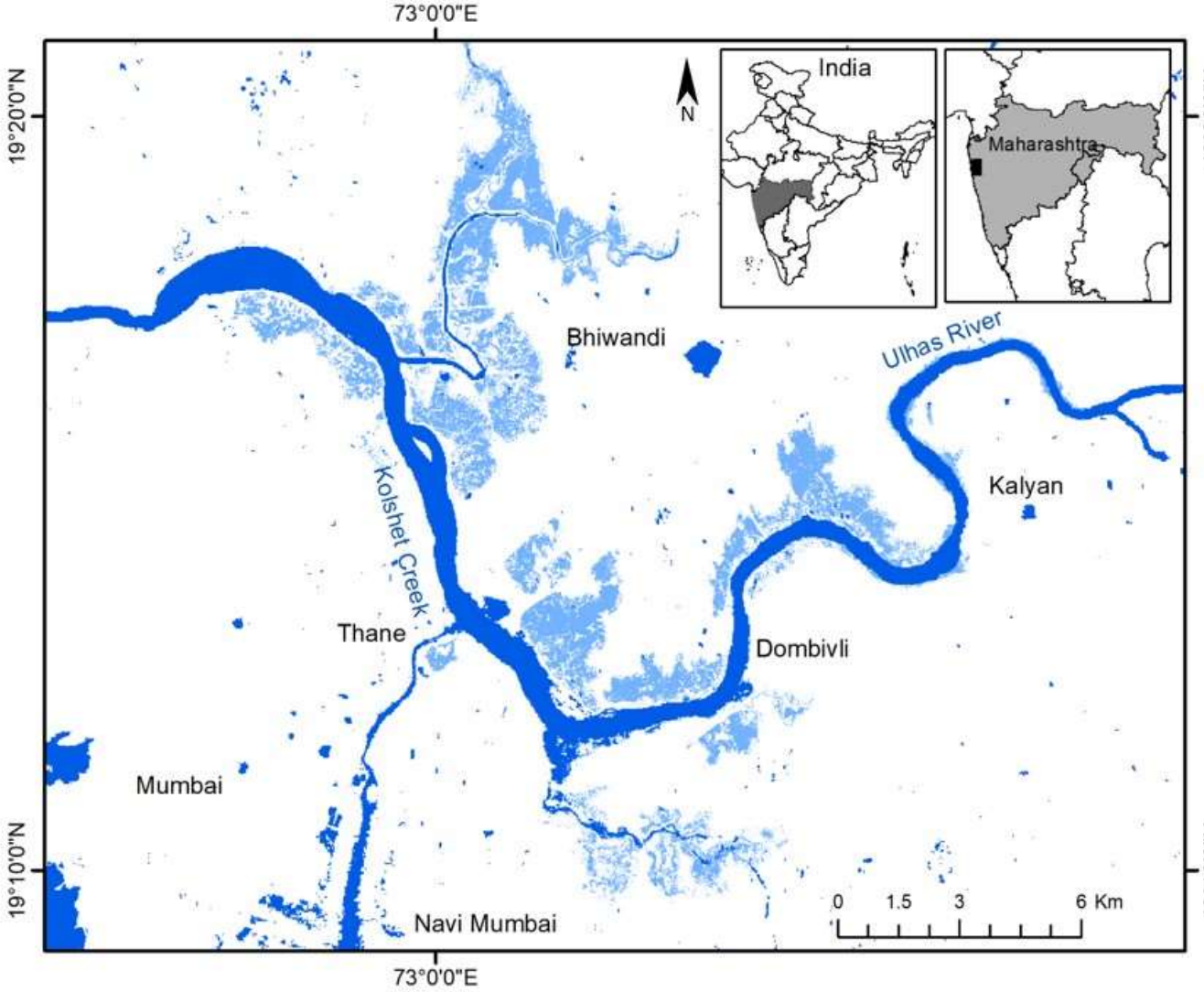
Case Study - Maharashtra, 2021

Area: Mumbai subruban region

ICEYE STRIP MAP IMAGE
DOP: 22 July 2021
Polarization: VV

Case Study - Maharashtra, 2021

Identification of inundated area of Mumbai and its suburban region using X band SAR data



About Event

A low-pressure area was marked over the Gulf of Cambay in the Arabian Sea and adjoining Saurashtra, South Gujarat, and North Konkan. Due to this, Konkan coast experienced heavy to very heavy rainfall. On 22nd July 2021, the region experienced heavy rainfall and later reported as Maharashtra saw the highest rainfall in the month of July in 40 years.

(Source: News Media)

Satellite Monitoring

To identify the water inundated area of Mumbai, Synthetic Aperture Radar (SAR) data of ICEYE sensor were employed. High resolution X band Stripmap image having high repetitive coverage helps to get near real time update.The permanent surface water bodies were excluded from the inundated area for better accuracy.

(Prepared by Suhora Technologies Pvt. Ltd.)

Data used ICEYE Stripmap mode X band VV polarization
Date of pass: 22 July 2021

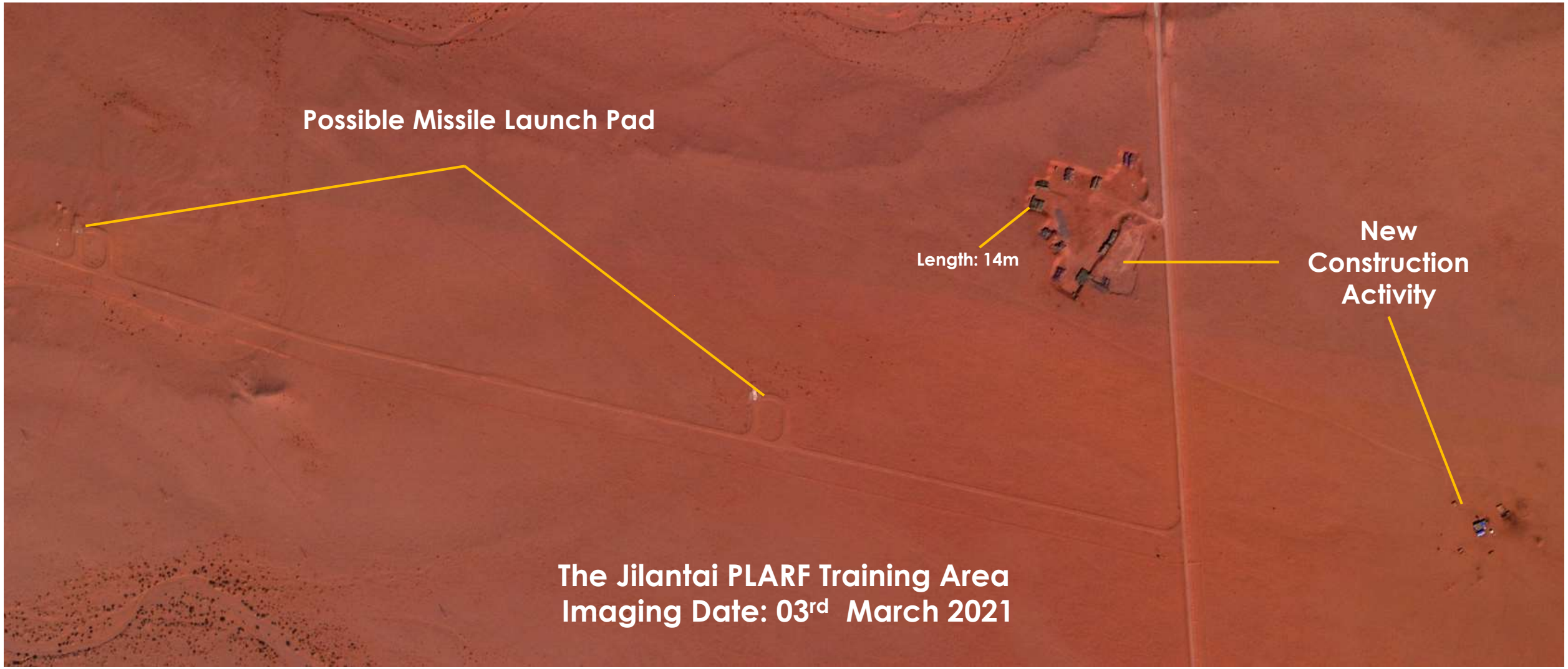
Inundated Area
Water Bodies

Revisit over a POI

Can cover any point over DnI target <>10 times per day using Optical and SAR Constellation

Gwadar Port, Pakistan

High Res Optical Monitoring



High Res SAR Monitoring

Location: 25.10756N, 62.32125E

Sensor: ICEYE X4

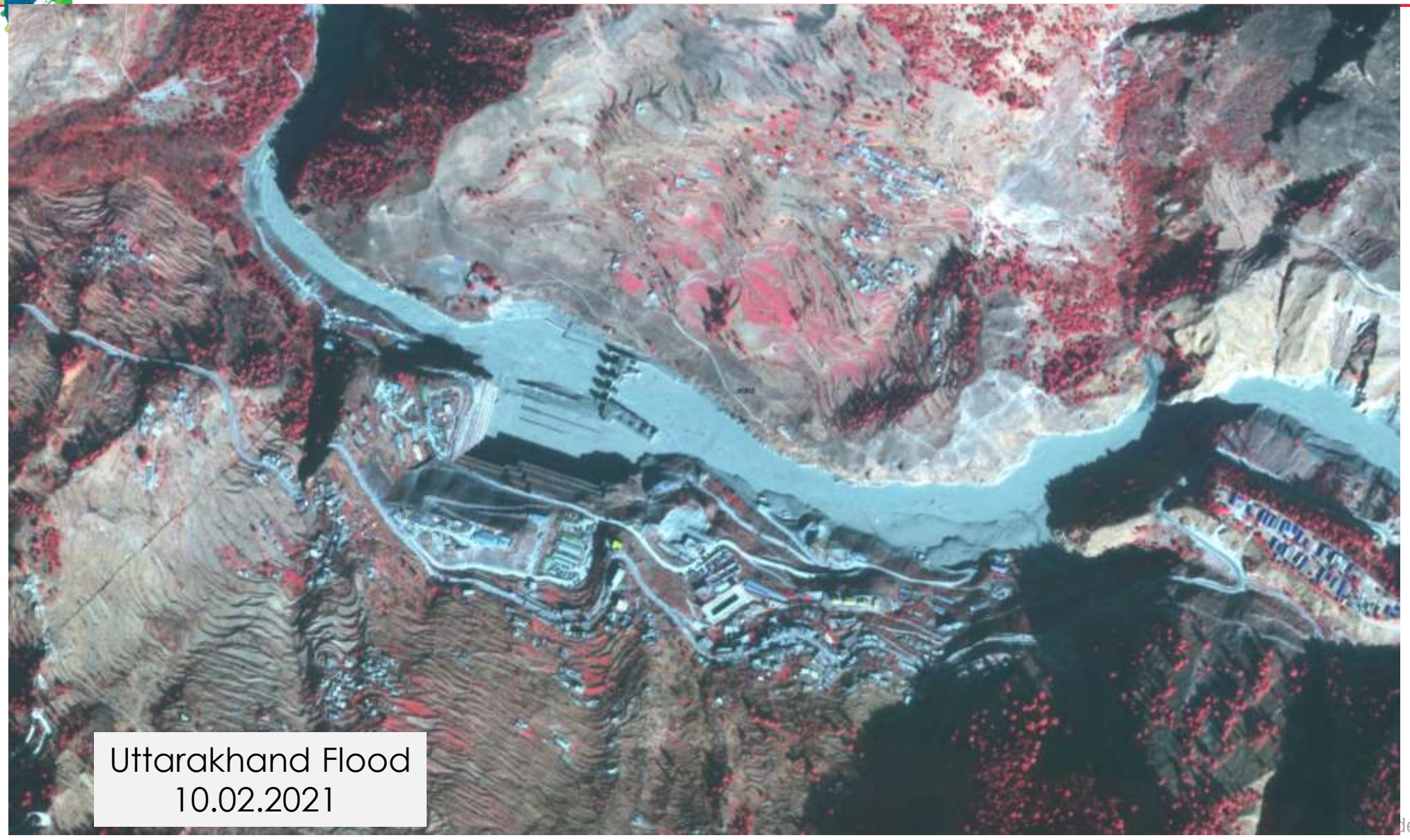
Acquisition Mode: SpotLight

Frequency Band : X

Imaging time: March 2nd 2020 4:10 IST

High Res Optical Monitoring

High Res Optical Monitoring

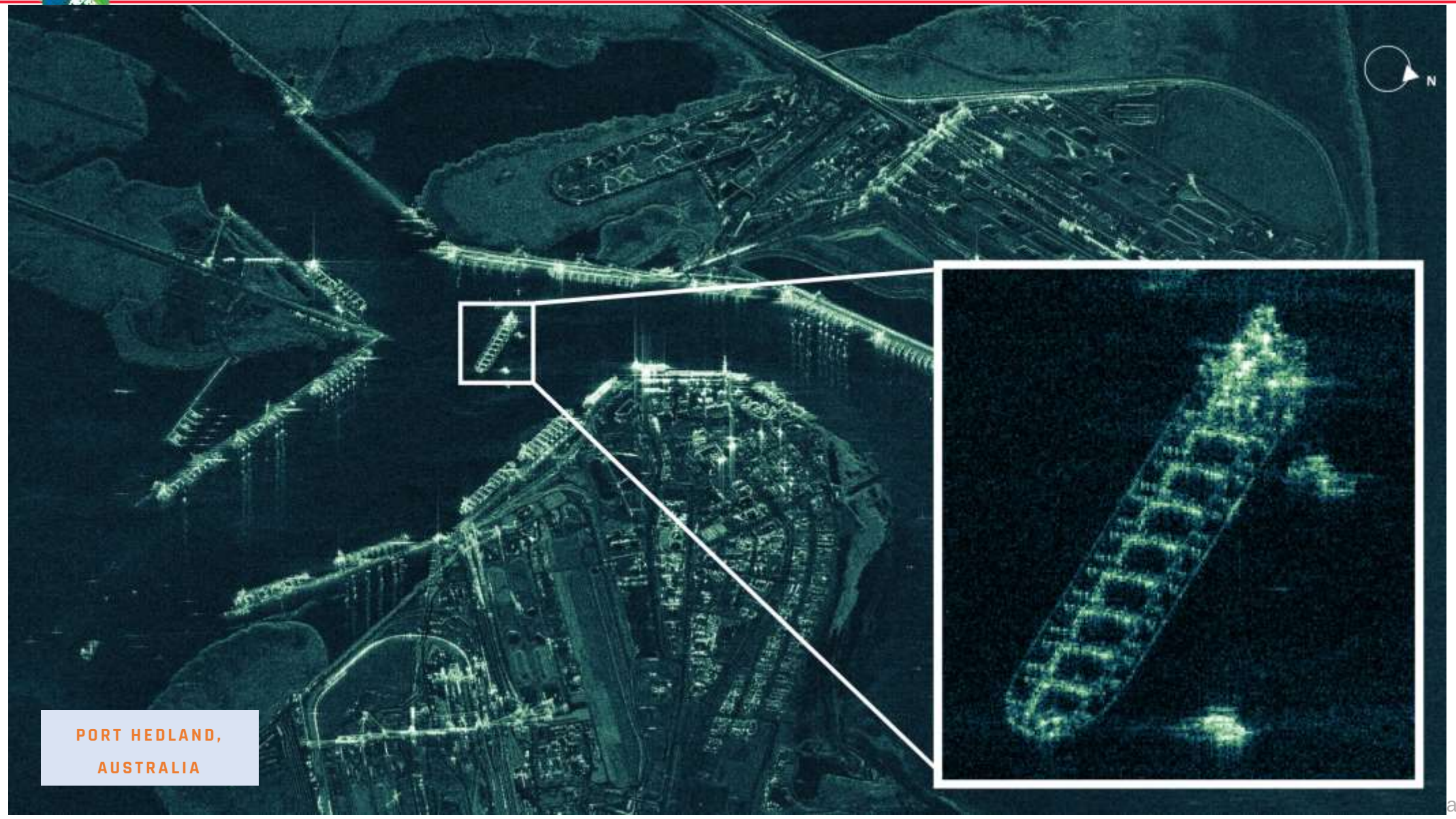


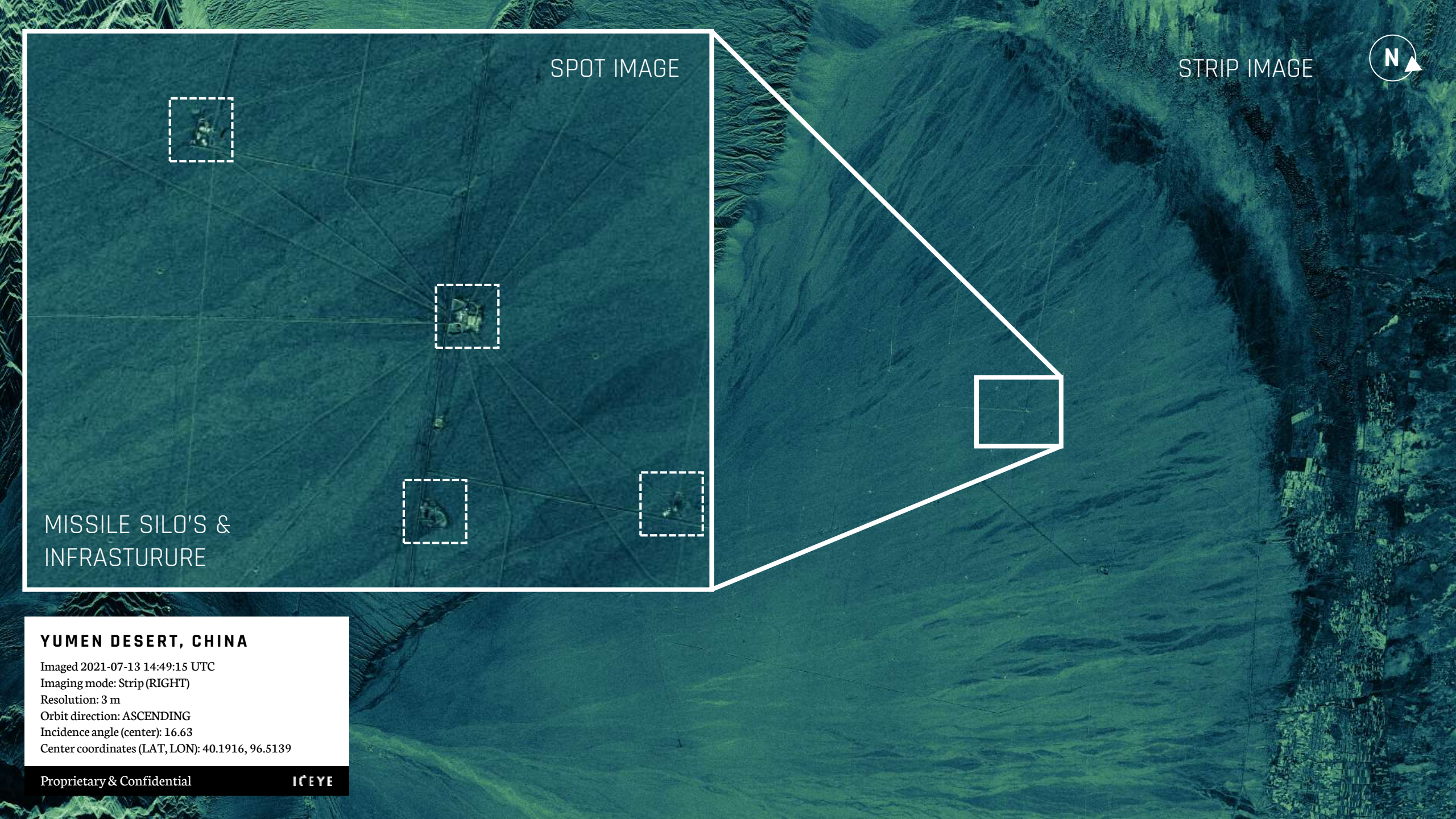
Uttarakhand Flood
10.02.2021

High Res Optical Monitoring

High Res Optical Monitoring

High Res SAR Monitoring





YUMEN DESERT, CHINA

Imaged 2021-07-13 14:49:15 UTC
Imaging mode: Strip (RIGHT)
Resolution: 3 m
Orbit direction: ASCENDING
Incidence angle (center): 16.63
Center coordinates (LAT, LON): 40.1916, 96.5139

Satellite Videos Monitoring

Team Suhora thanks you..

Rupesh Kumar
CTO and Co-Founder

Amit Kumar
COO and Co-Founder

Krishanu Acharya
CEO and Co-Founder